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Sexual Health Communication Between Mothers and Adolescents

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Sexual Health Communication
Between Mothers and Adolescents

by

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Sexual Health Communication
Between Mothers and Adolescents

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Despite a number of public health initiatives targeting the sexual health of teenagers, teen pregnancy and STD rates in the U.S. remain exceptionally high. Although schools and peers are common sources of information for teens, research suggests that parents serve as one of the primary sources of sexual health information for adolescents. Many studies have focused on the content of parent-adolescent communication about sex, but more needs to be known about how such communication varies by adolescent gender and across different kinds of families. In this study, regression analysis assessed mother and adolescent In-Home interview data from Wave I of the Adolescent Health dataset (n = 20,745). Findings indicate that family structure and maternal education are somewhat predictive of the communication outcomes, yet adolescent gender remains the most significant factor in communication between mothers and adolescents. In short, mothers communicate more about sexual health with girls than boys, and this gender gap does not vary considerably across family structures or socioeconomic statuses based on maternal education.

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Chapter 1: Introduction

The sexual health of U.S. adolescents is a great public health concern. Despite decreases in the teen pregnancy rate in recent years, the U.S. rate is double that of other developed nations (McKay and Barrett 2010). Although U.S. adolescents have similar levels of sexual activity compared to their peers in other developed nations, they are less likely to use contraception (Santelli, Sandfort, and Orr 2008), contributing to the nine million new sexually transmitted diseases acquired each year by teens (Weinstock, Bermand, and Cates 2004). In this light, the evidence that quality parent-adolescent communication regarding sex has been linked to increased contraceptive use, fewer sexual partners, delayed sexual activity, and an increased awareness of HIV and other sexually transmitted diseases, therefore, is important (East 1996; Hutchinson 1994; Jaccard, Dittus, and Gordon 1996). Given the links between communication and sexual health, exploring the different aspects of sexual health communication within families and the ways in which these dimensions are socially patterned is critical.

Using data from the National Longitudinal Study of Adolescent Health (Add Health), this study will explore patterns of mothers' communication with adolescents regarding a variety of sexual health topics. Special attention will be paid to the gendered nature of communication and how such differences may vary across different family structures and circumstances. Specifically, regression analyses will examine two aspects of mother-adolescent communication, (i.e., discussing the consequences of sex and reluctance to talk about sex). Analyses will determine whether such family communication varies by adolescent gender, and whether this gender gap in

communication is more pronounced when mothers have histories of relationship instability or are more socioeconomically disadvantaged.

The findings of this study will advance understanding of parent-adolescent communication at a time when adolescent sex education is a visible and contentious public health and policy issue. Sex education is often discussed and studied within the context of schools. In the last decade, however, public discussions about school-based sexual education have increasingly highlighted the views of many that communication about sexual health is a family responsibility (Fields 2006; Jaccard et al. 2002). This view, to a certain degree, has some weight. After all, adolescents rank parents as one of their top sources of information regarding sexual health (Brown 2008; DHHS 1996), with sexual health communication being an important way in which families pass on values and beliefs (Feldman and Rosenthal 2000). As a result, the question of how much constructive communication is going on, and in which families, becomes critical. If political and cultural debates continue to push this communication as a family, rather than school responsibility, then we need to know the extent to which, and under what circumstances, families are taking on this responsibility. Being informed about what is taking place in the home can contribute to current developments surrounding sexual health and effective communication practices.

Parent-Adolescent Communication

A number of studies have focused on parent-adolescent communication and the noticeable transformations within the family context that take place from early to late adolescence. Parent-child relationships typically have a hierarchal structure. As

adolescence unfolds, however, these interactions move towards more equality (Steinberg and Silk 2002). Adolescents begin to view things that were once purely under parental discretion with more personal accountability (Smetana 2004). As adolescents seek autonomy, they tend to distance themselves somewhat from parents and reach out to friends for social support (Steinberg 2001). This distancing, however, does not necessarily mean that sons and daughters stop communicating with both mothers and fathers regarding a variety of issues. Adolescents may be comfortable discussing school and friends with both parents, whereas details regarding dating and sexual health are generally disclosed more with mothers than fathers (Steinberg and Silk 2002). Given the transformations that take place among parents and children as they advance through adolescence, the communication patterns among these dyads deserve closer attention.

Researchers have often asked how parents and adolescents communicate about uncomfortable topics, including sexual health. The discomfort associated with sexual health may explain why the content itself is often surface-level and may neglect the greatest risks associated with sexual activity (e.g., sexually transmitted diseases, pregnancy, etc.). Hutchinson and Cooney (1998) found that a large percentage of adolescents received information from their parents; this information, however, was limited and addressed low-risk topics such as dating, development, attraction, and menstruation. Parents' beliefs and perceptions regarding adolescents' exposure to sexual activity do in fact have the potential to generate communication about riskier topics. If parents believe that their adolescent or their adolescent's friends are engaging in sexual

activity, they are more likely to provide specific and practical information in attempts to protect their children (Fox and Inazu 1980; Raffaelli, Bogenschneider, and Flood 1998).

Regardless of what motivates parents to communicate with their adolescents about sexual health, research measures used in previous studies often complicate our understanding of what is actually taking place in the home. Measures differ greatly across studies and include a variety of themes under the umbrella of "sexual communication." Specific measures include topics such as pregnancy, intercourse, abortion, homosexuality, birth control, prostitution (Hutchinson and Cooney 1998), and biological issues such as menstruation (Kotva and Schneider 1990; Rosenthal and Feldman 1999). They also include more vague measures, such as "whether teen sex is ok" and "parent gave information about birth control" (Raffaelli et al. 1998). A range of findings follow these diverse measures of parent-adolescent communication, including both positive and negative associations with adolescent sexual activity.

Given this inconsistency in the research measures and literature, an important first step is to merely explore how much parents are talking to their adolescents about sex, the general tone of these discussions, and what topics are touched upon during these conversations. This study does just that by exploring the data in Add Health in which youth and their parents report on their communication about sex as well as their feelings surrounding sexual-health topics and discussions. In doing so, the focus is on mothers, as they tend to engage in more communication with children than fathers, especially regarding sexual health. Mothers are also more likely to have custody of adolescents when parents are not married (Fisher 1993; Fox 1981; Grall 2009; Maldonado 2005).

This exploration will then be expanded in a more sociological direction by considering how the gendered nature of sexuality in the U.S. plays a role in who discusses sex, what they discuss, and the extent of these discussions.

The Significance of Gender

The different ways in which parents communicate with their sons and daughters about sexual health requires a deconstruction of these conversations by gender. In many cases, mothers are often the primary parent discussing sexual health with their children (Dutra, Miller, and Forehand 1999; Fisher 1993; Fox 1981; Hutchinson and Cooney 1998). This trend is surprising in some sense, especially when close ties exist between father and son; because we know that sons are generally closer to their fathers and that they typically become closer throughout adolescence (Lerner and Steinberg 2004). Still, this gender gap does exist and is strong. It may be a result of adolescents spending more time with their mothers than their fathers (Steinberg and Silk 2002). Yet, the underlying issues likely run deeper than shared time.

Depending upon the family structure, discussions about sex may be considered the mother's duty. This belief is likely to be the case given that mothers are often the primary parent in many matters when it comes to child-rearing (Maccoby and Mnookin 1992; Warshak 1996). With that in mind, more of the responsibility may fall on her if her adolescent becomes pregnant or impregnates someone else, thus prompting an increase in communication. Lastly, mothers are often the providers of emotional support in families, whereas fathers provide more material and informational support (Steinberg and Silk 2002). When fathers do discuss sex, communication is often indirect and broadly related

to socio-sexual values (Fisher 1993; Hepburn 1983). This tendency of fathers, again, may explain why mothers take the responsibility of discussing sexual health in greater depth.

Given that mothers are usually the primary parent discussing sex, I would anticipate that comfort and content would greatly decrease among mothers and sons compared to mothers and daughters. Not only are girls typically more in tune with and dependent upon interpersonal relationships than boys (Gilligan 1982; Pearson, Muller, and Frisco 2006), thus increasing mother-daughter comfort, it is likely that "gender intensification" further explains the comfort aspect associated with discussing sex in mother-son and mother-daughter dyads (Hill and Lynch 1983). This hypothesis predicts that opposite-sex behavior (i.e., mothers and sons in this study) that was once acceptable during childhood is no longer supported during adolescence. During adolescence, boys' sexual identities continue to diverge from their mothers, which likely fuels the discomfort surrounding sexual health communication found more often in mother-son versus mother-daughter dyads.

Regardless of gender, parents are less comfortable discussing sex if they feel they lack knowledge on topics that may arise (Jaccard et al. 2000). This feeling of inadequate knowledge has the potential to occur more often in mother-son dyads, especially concerning physical development. Comfort lends support to the finding that mothers discuss sexual health issues more in-depth with daughters than with sons (Raffaelli et al. 1998). If mothers' comfort is not widening this gender gap, perhaps their belief that their daughters are more susceptible to negative outcomes increases communication. In terms of content, daughters are likely to receive more extensive information regarding

development and contraceptives than sons (Jaccard and Dittus 1991; Raffaelli et al. 1998). This content difference may reflect societies' perception that girls are more vulnerable, either in consenting without pressure or in terms of the risks associated with sex. This assumption ignores the fact that girls can pressure boys just as easily and that boys have strong incentives to protect themselves as well, including the possibility of an unintended pregnancy of a partner. Despite the fact that mothers may spend more time with sons than fathers, I would expect that the gender difference between mothers and sons would increase mothers' reluctance about talking with sons and, as a result, decrease the amount of information they discuss with sons compared to daughters. The first aim of this study, therefore, is to determine whether the specific content mothers discuss differs by adolescent gender.

Family Circumstances and Histories

Given the focus on mothers' communication with daughters and sons about sexual health, gender differences are likely to vary across the diverse family structures and socioeconomic strata found in the U.S. These demographic and economic factors may influence mother-adolescent communication directly, as well as moderate the link between adolescent gender and communication. This moderation is likely to reflect gender norms and values regarding sex, in terms of mothers' communication with adolescents. Here the focus is on mothers' relationship histories and socioeconomic statuses. Regarding mothers' relationship histories, however, two theoretical issues deserve closer examination.

First, the concept of modeling is important. Bandura's social learning theory states that individuals learn from those around them and, in turn, replicate behaviors and beliefs through modeling, observation, and imitation (Ormrod 1999). Whitbeck, Simons, and Kao (1994) found that adolescents in single-parent households were more aware of their parents' sexuality as their parents began to date again. Adolescents may then take cues from their parents and apply them as they begin their own relationships. When mothers are not currently married, they have more opportunities for modeling romantic and sexual behaviors. Through dating, mothers may be reminded of the decision-making involved in navigating the dating scene and relationships, which could in turn increase their communication with daughters. Their recent familiarity with dating, despite the age gap, may remind them of issues women face while dating, as well as increase reciprocal feelings among mothers and daughters of being better able to relate to one another. Also, in the case of single or remarried mothers, communication about relationships and sex may occur more frequently with daughters given that mothers' are more sensitive to divorce or other forms of relationship instability. With this in mind, I anticipate that mothers who had experienced relationship instability (i.e., single or remarried mothers) would take a more "practical" approach by providing information about contraceptives and STDs, regardless of hopes and expectations for her daughter.

Second, the presence of a man living in the household, regardless of whether he is the father or not, and how he influences communication roles is important to explore. Although having a man present would seemingly shift the responsibility of talking to sons about sex away from mothers, findings related to this phenomenon are mixed.

Raffaelli, Bogenschneider, and Flood (1998) found that family structure had no significant association with communication and that mothers remained the primary parent discussing sexual health. This finding, however, was taken from a non-representative sample and included primarily non-Hispanic White and well-educated respondents. In contrast, many studies show that fathers do communicate, just not in the same way as mothers (Diiorio, Kelley, and Hockenberry 1999; Hutchinson and Cooney 1998). Suggesting that a man present in the household would play no role in sexual health communication only seems probable if the man in the house is not the biological father. While mothers may remain the primary parent discussing sex, regardless of family structure, mothers may still want the father to talk to the son. Fathers, or even father-figures, would likely relate to the son better than the mother. I would expect, therefore, that only in the case of biological fathers would the role of communicating with sons shift partially from mothers. In other words, mothers married to the biological father would communicate less with sons than they would in other family structures. Thus, the second aim of this study is to test this possibility.

Importantly, these associations among gender, communication, and family structure are likely to be moderated by maternal education. Maternal education is necessary to study here because it is linked to a number of positive outcomes including increased sense of personal mastery, self-direction, as well as many other productive habits and abilities (Mirowsky and Ross 2003). The behaviors and traits associated with maternal education are likely to strengthen communication between mothers and adolescents, regardless of family structure or adolescents' gender.

Maternal education is also linked to the intergenerational transmission of status and the current trend of divergence in terms of resources passed on by poorly-educated versus well-educated mothers. Mothers who are well-educated are more likely to transmit values and behaviors that promote higher socioeconomic status, whereas mothers' with low levels of education are less equipped to transmit status in a way that benefits or boosts their children's status (McLanahan 2004). In both cases, maternal education serves as a mechanism transmitting high or low socioeconomic status. The benefits of maternal education are projected onto many aspects of parenting, in ways that promote pro-academic behaviors and beliefs, which are then passed on to their children (Augustine, Cavanagh, and Crosnoe 2009; Davis-Kean 2005).

With this in mind, I anticipate that mothers' education will influence communication patterns and decisions. Maternal education often serves as a buffer against external risks and instability (Augustine et al. 2009). In other words, the parenting practices of more educated mothers is steadier in the face of potential obstacles to engaging in the desired form of parenting that would be seen among other mothers. Here, the "risk" to sexual health communication between mothers and adolescents would be if they adolescent is male, especially if the mothers is not currently partnered with the adolescent's father. Thus, the gender gap in communication should decrease as maternal education increases. Also, the presence or absence of a man in the house should be less predictive of communication as mothers' education levels increase. In sum, mothers with some college or more are expected to discuss sex more equally with sons and daughters,

regardless of family instability or other risk factors. The third aim of this study is to test this possibility.

Chapter 2: Methods

Data and Sample

This study will use Add Health, a nationally representative longitudinal study of 7th through 12th grade students. The initial sample (n = 90,118) was taken from 80 high schools and 52 middle schools across the country. Sampling included a multistage, stratified, school-based design method incorporating students from a variety of backgrounds in terms of school size, ethnicity, region, urbanicity, and school type (e.g., private, public, Catholic etc). Students were given the In-School survey in 1994, with the final sample being selected to participate in 1995. Parents and students then participated in In-Home interviews beginning with Wave I (1994-95) and continuing through Wave II (1996), Wave III (2001-02), and Wave IV (2007-08) (Harris et al. 2009).

The sample used for this study is based on Wave I (n = 20,745). Data were taken from the parent and adolescent In-Home surveys. Reflecting the conceptual focus on mothers in this study, as well as more practical concerns (i.e., the number of fathers and male guardian respondents in this data set is low); the sample examined only adolescents with participating resident mothers. The final sample (n = 13,954) included only students with valid sampling weights. Those weights are necessary to correct for over-sampling of specific populations and, in the process, to make the data nationally representative (Chantala and Tabor 1999). See Table 1 for descriptive statistics of study variables.

Table 1. Descriptive Statistics for Study Variables

	All		Boys		Girls	
	Mean (SD)	Percent	Mean (SD)	Percent	Mean(SD)	Percent
Adolescent Characteristics						
Gender (female)		51.56		48.44		51.56
Adolescent age (WI)	16.04 (1.70)		16.11 (1.69)		15.97 (1.70)	
Romantic relationship in Wave I		54.33		52.36		56.19
Sexually active		37.60		39.79		35.54
Parent Characteristics						
Family income	46.04 (51.40)		45.96 (51.61)		46.12 (51.20)	
High school graduate (reference)		28.33		28.54		28.13
Some college		20.83		20.20		21.43
College graduate or more		34.66		35.57		33.81
Race and ethnicity						
Non-Hispanic white (reference)		56.15		56.90		55.45
Hispanic		15.28		15.55		15.01
African American		19.44		17.95		20.85
Asian American		5.10		5.74		4.50
Other		2.15		2.10		2.20

Table 1 continued on next page.

Table 1 (continued).

	All		Boys		Girls	
	Mean (SD)	Percent	Mean (SD)	Percent	Mean(SD)	Percent
Family structure						
Married (reference)		59.07		59.96		58.25
Step family		15.63		15.95		15.33
Single		24.07		22.87		25.18
Other		1.23		1.22		1.24
Family Instability						
Family transitions	.73		.72		.74	
	(1.11)		(1.12)		(1.10)	
Key Study Variables						
Discussed consequences of sex	2.91		2.80		3.02	
	(.83)		(.84)		(.79)	
Reluctance to talk about sex	1.83		1.91		1.75	
	(.74)		(.76)		(.71)	
Overall relationship with child	4.14		4.15		4.13	
	(.55)		(.55)		(.56)	

(n = 13,954).

Measures

Communication. Parent-adolescent communication was measured using two different composites related to parents' level of communication and agreement or disagreement discussing sexual health issues. Specifically, the first composite was created for general communication and included whether or not mothers discussed birth control, sex, and the consequences of sex with adolescents ($\alpha = .90$). Responses were coded 1 (not at all), 2 (somewhat), 3 (a moderate amount), and 4 (a great deal). Specific measures addressed whether the parent discussed the consequences of becoming pregnant or getting someone pregnant, the dangers of STDs, the negative impacts these outcomes may have on their social lives, as well as the moral issues associated with having pre-marital sex. Items were averaged to create a composite score with higher values indicating a greater amount of communication about sexual health.

The second composite included five items regarding mothers' reluctance to talk to adolescents about birth control and sex ($\alpha = .81$). This reluctance is attributed to parent or child embarrassment, lack of knowledge, the belief that their child will get information from other sources, or be encouraged to have sex based upon conversations about related topics. Responses were reverse coded to 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree). The composite was created by averaging the five indicators, with higher scores indicating greater feelings of reluctance discussing sexual health.

Parent-adolescent relationship quality. A third composite was included to explore the overall relationship quality of the mother and adolescent. This outcome serves as a

general point of comparison to the communication outcomes, allowing me to assess whether the communication findings are unique or likely indicative of more general parenting processes. These six items in the quality composite included whether the mother and adolescent got along well, made life decisions together, trusted one another, whether the mother understands their adolescent, whether or not the adolescent interferes with mothers' activities, and mothers' overall relationship satisfaction (α = .71). Variables were reverse coded to 1 (never), 2 (seldom), 3 (sometimes), 4 (often), and 5 (always). The sixth item was reverse coded from a slightly different but similar scale: 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree). These six items were averaged to create the composite score, with higher scores reflecting better relationship quality. Although relationship quality is not a direct measure of communication, links to warm, supportive relationships have been shown to directly affect communication (Jaccard et al. 1996; Jaccard et al. 1998; Rodgers 1999).

Mothers' relationship histories. Relationship history was measured using a combination of family structure items and a cumulative instability index, both constructed from the adolescent In-Home interview at Wave I. Adolescents were asked to account for all adults living in the household as biological parents, step-parents, or cohabitating partners, and how long each lived there beginning with the adolescents' birth through Wave I. This data was then combined to map family composition throughout the adolescents' life (Heard and Harris 2001). For each year of an adolescent's life, eight categories were created to encompass various family structure types (e.g., biological parents, adoptive parents, single-mother households etc.)

(Cavanagh, Crissey, and Raley 2008). From these measures, this study incorporated four of the eight family structure indicators (i.e., married, married (step-family), single, and other), with married as the reference category. The category "other" accounted for non-biological parents such as relatives, surrogates, or adoptive parents. For the cumulative instability index, I incorporated the number of transitions a family experienced to better measure relationship history. Divorces, separations, and remarriages were summed to create a family transition score which could range from 0 to 8. For example, a child consistently raised in a single-parent or two-parent family from birth through adolescence would have a transition score of 0 (Cavanagh et al. 2008).

Maternal education. Maternal education is often used as a proxy for socioeconomic status (Defo 1996; Desai and Alva 199; Gage 1998) and will be used as such in this study. Education has been shown to impact beliefs and behaviors of parents and is linked to positive outcomes among children (Mirowsky and Ross 2003). Dummy codes were created for highest adolescent-reported education of mother: high school graduate (n = 3,953), some college (n = 2,907), or college graduate or more (n = 4,836). Education was also included in that it is linked to increased occurrence of adolescents approaching parents for sexual health information (Leland and Barth 1993).

Individual-level controls. All analyses included individual-level controls for both the mother and the adolescent to prevent the possibility of measurable confounds leading to erroneous conclusions about associations. The study controlled for adolescent gender (1 = female, 0 = male), and adolescent age (years) at Wave I. Mothers' ethnicity was dummy coded into the following categories: Hispanic, African American, Asian

American, and non-Hispanic other, with non-Hispanic white as the reference category. Family income was controlled for in each model. Income was also incorporated as a control to account for key aspects of the family environment as well as the general socioeconomic context in which maternal education is embedded. Lastly, dichotomous indicators were created to control for adolescent relationship status in Wave I (1 = relationship in past year, 0 = no relationship in past year) as well as virginity status (1 = non-virgin, 0 = virgin). These two measures were included in that parents' perceptions of adolescent sexual activity may influence their communication (Fox and Inazu 1980; Raffaelli, et al. 1998).

Plan of Analysis

The primary goals of this study were to address parent-adolescent communication patterns and whether the content or occurrence varied based on adolescent gender, mothers' relationship history, and mothers' education. M*plus* v6.11 was used to compute all multivariate regressions (Muthen & Muthen 1998-2011). M*plus* estimated models using the full-information maximum likelihood method (FIML), a method that allows models to retain cases despite missing values. This method enables the analyses to include the maximum number of observations. Also, since cases in the sample were not statistically independent (i.e., students may come from same schools), M*plus* can adjust standard errors to account for the biasing effects of this clustering. Sampling weights were also included in all analyses to account for over-sampling of specific populations (e.g., disabled, Chinese, twins) (Chantala and Tabor 1999). In the first step in the analyses, each outcome variable was regressed on gender and individual-level covariates.

These models estimated the associations between adolescent gender and discussing the consequences of sex, mothers' reluctance to talk about sex, and parent-adolescent relationship quality. The second step built on the base model by adding family structure and instability measures to the model while controlling for individual-level covariates. The third step incorporated interaction terms between adolescent gender and mothers' relationship statuses and family transitions. This step assessed the degree to which the association between adolescent gender and the outcome varied by mothers' relationship history. The final analytical step involved the examination of whether the patterns estimated above differed by maternal education. Specifically, the model from the third step was estimated for three groups: (i.e., high school, some college, and college or more), with the focal results (i.e., gender, relationship status/instability, and interactions) compared across groups.

Chapter 3: Results

Table 1 presents descriptive statistics for the overall sample as well as by adolescent gender. Based on mothers' highest level of education, the majority of respondents had relatively high socioeconomic status, with 56% of mothers having at least attended some college or more. Marriage was also the most common family structure, encompassing 59% of respondents. Mothers were more likely to be single than re-married. More boys lived in a two-parent or step-family than girls, with girls more likely to live in a single-parent household. Family instability, or transitions in or out of various family structures, was relatively low, with the average adolescent having a transition score of less than one (.73). Having a transition score of zero or one accounted for nearly 80% of adolescents. Girls, however, experienced a slightly higher number of family transitions than boys.

In terms of adolescent relationships and parent-adolescent communication, a few descriptive statistics are important to note. More girls (56.2%) were in a relationship during Wave I than boys (52.4%). In contrast, boys reported being more sexually active (39.8%) than girls (35.5%). Relationship quality among mothers and adolescents was relatively high (i.e., 4.1 on a 5.0 scale) with reports being fairly similar for daughters and sons. Mothers were, however, less reluctant to talk to daughters about sex, and much more likely to discuss the consequences of sex with daughters compared to sons.

A Pearson correlation matrix was computed to assess the strength of the associations among predictor and outcome variables (Table 2). Many of the correlations

were relatively small, yet a large number were statistically significant, most likely because of the large sample size.

In terms of the dependent variables, bivariate correlations indicated that discussing the consequences of sex was positively correlated with being female (in other words, higher among girls), while reluctance to talk about sex as well as parent-adolescent relationship quality were both negatively associated with being female.(in other words, lower among girls). Discussing the consequences of sex was negatively correlated with the mother being married and positively correlated with step-family and single-family structures. In terms of reluctance to talk about sex, all associations were positive except in the case of step-families. Family transitions were negatively correlated with quality of relationship and reluctance to talk about sex but positively associated with discussing the consequences of sex. Quality of parent-adolescent relationships was positively associated with mothers being married to the adolescents' fathers but negatively associated with all other family structures. In terms of maternal education, reluctance to talk about sex was negatively correlated with the mother having a college degree or more. The remaining outcome variables were minimally correlated with mothers' educational attainment. Lastly, being a sexually active adolescent was moderately correlated with adolescents' age as well as having a relationship in Wave I.

In sum, preliminary analyses suggest that adolescent gender is indeed related to mother-adolescent communication about sex, as are many other factors, including maternal education. These preliminary statistics need to be explored further in a multivariate context.

Table 2. Correlation Matrix for Associations Among Predictor and Outcome Variables

Variables	1	2	3	4	5	6	7	8	9	10
1. Adolescent age (years)	1									
2. Married	-.033**	1								
3. Step-family	.021*	-.517**	1							
4. Single	.000	-.676**	-.242**	1						
5. Other	.082**	-.134**	-.048**	-.063**	1					
6. Transitions	.053**	-.673**	.512**	.315**	.093**	1				
7. Gender (female)	-.043**	-.017	-.009	.027**	.001	.008	1			
8. High school	-.031**	-.081**	.052**	.056**	-.027**	.079**	-.004	1		
9. Some college	.014	-.007	.017	.005	-.045**	.014	.015	-.323**	1	
10. College graduate	-.054**	.183**	-.067**	-.139**	-.058**	-.146**	-.018*	-.458**	-.374**	1
11. Family income	-.003	.196**	-.016	-.202**	-.038**	-.141**	.002	-.134**	-.040**	.291**
12. Hispanic	.087**	-.005	-.001	-.004	.045**	-.006	-.007	-.030**	-.047**	-.172**
13. African American	-.029**	-.203**	-.021*	.247**	.019	.088**	.037**	.011	.004	-.004
14. Asian American	.041**	.080**	-.051**	-.048**	-.001	-.049**	-.028**	-.045**	-.041**	.106**
15. Other	-.002	-.031**	.033**	.012	-.016	.027**	.003	.011	.014	-.020*
16. Non-Hispanic White	-.055**	.139**	.030**	-.174**	-.043**	-.048**	-.015	.031**	.047**	.083**
17. Adolescent relationship status	.248**	-.062**	.059**	.017	.020*	.095**	.038**	-.012	.031**	.004
18. Sexually active	.380**	-.184**	.094**	.114**	.071**	.171**	-.044**	.050**	.035**	-.127**
19. Discuss consequences of sex	.091**	-.140**	.074**	.097**	.000	.118**	.138**	.047**	.064**	-.067**
20. Reluctance to discuss sex	.074**	.007	-.051**	.024*	.042**	-.034**	-.102**	.023**	-.088**	-.134**
21. Relationship quality	-.047**	.100**	-.053**	-.062**	-.032**	-.106**	-.018*	-.026**	.014	.037**

Table 2 continued on next page.

Table 2 (continued).

Variables	11	12	13	14	15	16	17	18	19	20	21
1. Adolescent age (years)											
2. Married											
3. Step-family											
4. Single											
5. Other											
6. Transitions											
7. Gender (female)											
8. High school											
9. Some college											
10. College graduate											
11. Family income	1										
12. Hispanic	-.120**	1									
13. African American	-.112**	-.209**	1								
14. Asian American	.037**	-.098**	-.114**	1							
15. Other	-.019*	-.063**	-.073**	-.034**	1						
16. Non-Hispanic White	.164**	-.481**	-.556**	-.262**	-.168**	1					
17. Adolescent relationship status	.025**	.004	-.042**	-.042**	.003	.057**	1				
18. Sexually active	-.074**	.003	.131**	-.049**	.010	-.082**	.382**	1			
19. Discuss consequences of sex	-.055**	-.043**	.171**	-.123**	.042**	-.066**	.137**	.181**	1		
20. Reluctance to discuss sex	-.112**	.244**	-.016	.151**	-.032**	-.220**	-.073**	-.005	-.426**	1	
21. Relationship quality	.028**	.045**	-.036**	.003	.000	-.004	-.103**	-.185**	.089**	-.179**	1

**. Correlation is significant at the 0.01 level (two-tailed). *. Correlation is significant at the 0.05 level (two-tailed).

Parent-Adolescent Communication by Adolescent Gender

The multivariate analyses began with the exploration of whether mothers communicated differently with sons and daughters. Model 1 in Tables 3 and 4 explored the association between adolescent gender and the two main family communication outcome variables.

Table 3 displays the results for discussing consequences of sex. An initial model (not shown) revealed that communication about the consequences of sex was stronger for girls than boys ($\beta = .22$, $p < .001$). This effect size equaled 27% of a standard deviation in the outcome. Model 1 in Table 3 added the individual-level covariates, which essentially did not change the initial association between gender and the outcome ($\beta = .21$, $p < .001$). Being sexually active and in a relationship during Wave I were significant predictors of parent-adolescent communication regarding the consequences of sex. The size of the association increased when adolescents were sexually active ($\beta = .26$, $p < .001$) and minimally decreased when adolescents reported being in a relationship ($\beta = .26$, $p < .001$). All non-white race/ethnic groups, as well as family income, were negatively correlated with this communication outcome. Mothers remained more likely to discuss the consequences of sex with daughters than with sons, with the results remaining essentially the same across models.

Table 3. Full Model Regression Estimates for Parent-Adolescent Discussion of the Consequences of Sex

	Unstandardized Coefficients (SE)		
	Model 1	Model 2	Model 3
Adolescent Characteristics			
Gender (female)	.21***	.21***	.21***
	(.02)	(.02)	(.03)
Adolescent age (WI)	.03**	.03**	.02
	(.01)	(.01)	(.01)
Romantic relationship (WI)	-.07***	-.06***	.15***
	(.02)	(.02)	(.03)
Sexually active	.26***	.25***	.21***
	(.04)	(.03)	(.02)
Parent Characteristics			
Family income	-1.28***	.27	-.00*
	(.30)	(.53)	(.00)
Some college	.06*	.05	.04
	(.03)	(.03)	(.03)
College graduate	.08**	.08**	-.03
	(.03)	(.03)	(.03)
Race and ethnicity			
Hispanic	-.15***	-.15***	-.07
	(.03)	(.03)	(.05)
African American	-.99***	-.96***	.27***
	(.16)	(.16)	(.04)
Asian American	-.34**	-.31*	-.37***
	(.13)	(.13)	(.07)
Other	-1.04***	-1.01***	.28***
	(.13)	(.12)	(.05)
Family Structure			
Step-family		.17***	.15***
		(.04)	(.04)
Single		.16***	.11***
		(.06)	(.04)
Other		.09	-.03
		(.11)	(.10)
Family transitions		.03**	.02
		(.01)	(.01)
Interactions			
Female x Step-family			.14
			(.08)
Female x Single			.04
			(.06)
Female x Other			.10
			(.19)
Female x Transitions			-.01
			(.02)
Intercept	3.45	3.21	2.28
n = 13,954			

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Table 4. Full Model Regression Estimates for Mothers' Reluctance to Talk about Sex with Adolescents

	Unstandardized Coefficients (SE)	
	Model 1	Model 2
Adolescent Characteristics		
Gender (female)	-.15***	-.15***
	(.02)	(.02)
Adolescent age (WI)	.02***	.02***
	(.00)	(.01)
Romantic relationship (WI)	-.09***	-.09***
	(.02)	(.02)
Sexually active	-.04	-.03
	(.02)	(.02)
Parent Characteristics		
Family income	-.01***	-.01***
	(.00)	(.00)
Some college	-.21***	-.22***
	(.02)	(.02)
College graduate	-.22***	-.23***
	(.02)	(.02)
Race and ethnicity		
Hispanic	.47***	.47***
	(.05)	(.05)
African American	.10***	.11***
	(.03)	(.03)
Asian American	.60***	.60***
	(.07)	(.07)
Other	-.04	-.03
	(.06)	(.06)
Family Structure		
Step family		-.07*
		(.03)
Single		-.03
		(.03)
Other		.12
		(.09)
Family transitions		-.02
		(.01)
Intercept	1.68	1.73
n = 13,954		

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).
Note: Interactions were included in the original model but were not significant and thus removed.

Table 5. Full Model Regression Estimates for Maternal Relationship Quality with Adolescents

	Unstandardized Coefficients (SE)		
	Model 1	Model 2	Model 3
Adolescent Characteristics			
Gender (female)	-.02	-.02	-.04*
	(.01)	(.01)	(.02)
Adolescent age (WI)	.01	.01	.01
	(.01)	(.01)	(.01)
Romantic relationship (WI)	-.05***	-.05***	-.05***
	(.01)	(.01)	(.01)
Sexually active	-.21***	-.19***	-.19***
	(.02)	(.02)	(.02)
Parent Characteristics			
Family income	.00**	.00	-.00
	(.00)	(.00)	(.00)
Some college	.02	.03	.06***
	(.03)	(.03)	(.02)
College graduate	.04	.04	.03
	(.03)	(.03)	(.02)
Race and ethnicity			
Hispanic	.05*	.05*	.05*
	(.02)	(.02)	(.02)
African American	-.01	.00	.00
	(.02)	(.02)	(.02)
Asian American	-.02	-.03	-.02
	(.04)	(.04)	(.04)
Other	-.02	-.01	-.01
	(.04)	(.04)	(.04)
Family Structure			
Step family		-.01	-.08
		(.03)	(.04)
Single		-.04	-.05
		(.02)	(.03)
Other		-.05	-.08
		(.07)	(.08)
Family transitions		-.03***	-.02
		(.01)	(.02)
Interaction Terms			
Female x Step family			.13*
			(.06)
Female x Single			.02
			(.04)
Female x Other			.06
			(.13)
Female x Transitions			-.02
			(.02)
Intercept	3.95	4.03	4.14
n = 13,954			

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Table 4 displays the results for mothers' reluctance to discuss sex with adolescents. Adolescent gender was significantly associated with the outcome across models. Mothers experienced less reluctance talking to daughters about sex than sons. The gender coefficient was highest in Model 1 ($\beta = .15$, $p < .001$) and decreased slightly as variables were added to the models. This coefficient indicated that the gender difference in communication equaled 20% of a standard deviation in the outcome.

As a counterpoint, I also estimated the same set of models for a general measure of parent-adolescent relationship quality (Table 5). The main effect of gender on relationship quality was negative ($\beta = -.06$, $p < .01$), indicating that sons had slightly better relationship quality with mothers than daughters. The effect size equaled 11% of a standard deviation in this outcome. Incorporating controls into the model (Model 1) indicated that gender remained a significant predictor of parent-adolescent relationship quality ($\beta = -.09$, $p < .001$). This coefficient indicates that the gender difference equaled 16% of a standard deviation in the outcome. Adolescent relationship status was positively associated with parent-adolescent relationship quality, net of all other covariates, but being sexually active was not. In other words, adolescents who were in a relationship, regardless of whether they were sexually active, had better relationships with mothers.

Parent-Adolescent Communication and Family Structure

Going back to Table 3, Model 2 indicated that, when controlling for individual-level factors, being in a step-family ($\beta = .17$, $p < .001$) or a single-parent household ($\beta = .16$, $p < .01$) was positively associated with parents and adolescents discussing the consequences of sex. These coefficients indicate that the gender difference in

communication equaled 20% and 19% of a standard deviation in the outcome respectively. Family transitions were also positively associated with discussing such consequences. As the number of family transitions increased, conversations about the consequences of sex increased ($\beta = .03$, $p < .01$). This coefficient represents 4% of a standard deviation in the outcome. Interaction terms were created and entered into this model to test whether family structure moderated the association of adolescent gender with the outcome (i.e., discussing the consequences of sex). The interactions did not, however, significantly predict the outcome, when holding all other variables constant. (Table 3, Model 3). In other words, the gender gap in discussions about sex did not vary across different types of family structures, including those that differed in the presence of a man or father.

According to Model 2 in Table 4, parent reluctance to discuss sex was significantly predicted by being in a step-family household ($\beta = -.07$, $p < .05$). This coefficient indicates that the gender difference in communication equaled 9% of a standard deviation in the outcome. This finding was, however, the only significant association among family structure variables. Results suggest that being in a step-family slightly decreased mothers' reluctance to talk to adolescents about sex. The gender x family structure interactions did not significantly predict mothers' reluctance to discuss sex. The lack of significant interactions, therefore, indicates that this similarity or difference in maternal reluctance to discuss sex for girls and boys did not vary across family structures.

Again, an examination of a parent-adolescent relationship quality serves as a general point of comparison to the specific study of parent-adolescent communication about sex. Family structure had nearly no observed effect on relationship quality (Table 5, Model 2). Family instability was, however, negatively associated with parent-adolescent relationship quality (β = -.03, p < .001). This coefficient indicates that the family structure difference in communication equaled 5% of a standard deviation in the outcome. As the number of family transitions increased, the quality of the parent-adolescent relationship decreased.

Regressing relationship quality on the gender x family structure interaction terms revealed some small evidence of moderation (Table 5, Model 3). Results indicated that mothers had slightly better relationship quality with sons in general (β = -.03, p < .05), with the effect size equaling 5% of a standard deviation of the outcome. The gender x step-family interaction was positively associated with relationship quality (β = .13, p < .05), with mothers in step-family households reporting better relationship quality with daughters than sons. In most other family structures, parent-adolescent relationship quality did not differ substantially by adolescent gender. Figure 1 displays these interactions.

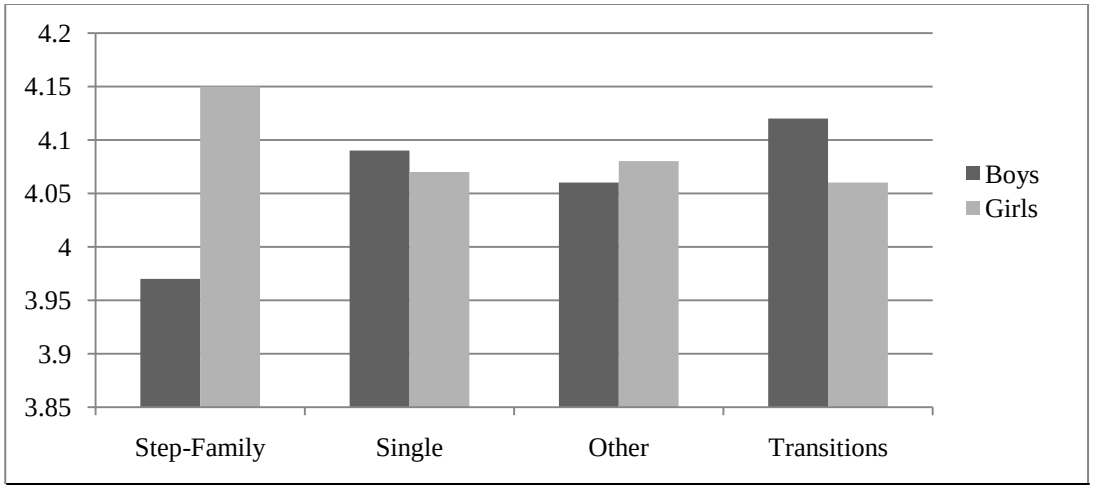

Figure 1. The Association between Parent-Adolescent Relationship Quality and Family Structure by Gender.

Parent-Adolescent Communication and Maternal Education

Upon rerunning Models 2 and 3 in Table 3 by educational attainment, the significance of gender (i.e., being female) in discussing the consequences of sex remained highly significant ($p < .001$) within each maternal education group (Table 6, Model 1). The coefficient progressively decreased as maternal education increased, from mothers with a high school education ($\beta = .28$, $p < .001$) to mothers with a college degree or more ($\beta = .19$, $p < .001$), when controlling for family structure and other covariates. These coefficients represent 34% and 23% of a standard deviation in the outcome respectively. The less education mothers had, the larger the gender gap in discussing the consequences of sex. The effect of gender on the outcome decreased minimally across all maternal education groups when the gender x family structure interactions were added to the model (Model 2). These interactions were statistically significant except in the college graduate category.

Family structure was positively associated with discussing consequences of sex among single mothers (β = .21, $p < .001$) and step-families (β = .15, $p < .01$) who had a high school education. The coefficient for discussing the consequences of sex increased among women with a college education (β = .21, $p < .01$) when controlling for family structure, but only for mothers in step-families (Model 1). Lastly, the "other" coefficient for family structure as well as the gender x other interaction coefficient was significant for mothers with a high school education or some college. This "catch-all" category is difficult to substantively interpret, given that the actual family type is unknown and, therefore, will simply be reported but not discussed.

Turning to the second communication outcome, adolescent gender significantly predicted mothers' reluctance to discuss sex in all maternal education groups (Table 7). The association between gender and reluctance was strongest among mothers who were high school educated (β = -.19, $p < .001$), thus indicating that these mothers experienced less reluctance discussing the consequences of sex with daughters. In other words, the gender gap was widest among mothers with the lowest educational attainment. Mothers with some college had the smallest coefficient (β = -.10, $p < .01$) and therefore the smallest gender gap in communication. College graduates (β = -.13, $p < .001$) had similarly small coefficients and, thus, a small gap in communication differences among daughters and sons. Gender x family structure interactions were not significant at any maternal education level.

For the parent-adolescent relationship quality comparison analyses, grouping the sample by maternal education revealed few new insights. Gender did not predict this

outcome in any maternal education group. Looking at the gender x family structure interactions across groups, however, reveals that the gender x step-family interaction significant in the full sample (indicating girls were closer with mothers in step-families than boys) was primarily found in families with the most educated mothers.

Table 6. Partial Results of Regression Models Predicting Mother-Adolescent Discussion of the Consequences of Sex, by Maternal Education

	Unstandardized Coefficients (SE)				
	High School Graduate		Some College		College Graduate
	Model 1	Model 2	Model 1	Model 2	Model 1
Adolescent Characteristics					
Gender (female)	.28***	.27***	.22***	.21***	.19***
	(.04)	(.05)	(.04)	(.06)	(.03)
Adolescent age (WI)	.04***	.04***	.00	.00	.03**
	(.01)	(.01)	(.02)	(.02)	(.01)
Romantic relationship (WI)	.13**	.13**	.12*	.11**	.15***
	(.05)	(.05)	(.05)	(.05)	(.03)
Sexually active	.12***	.11**	.26***	.26***	.25***
	(.04)	(.04)	(.05)	(.05)	(.04)
Family Characteristics					
Step family	.15**	.04	.13	.11	.21**
	(.06)	(.09)	(.10)	(.15)	(.08)
Single	.21***	.17*	.10	.16	.07
	(.06)	(.09)	(.07)	(.10)	(.06)
Other	.13	.56***	-.48	-1.12**	.29
	(.20)	(.11)	(.73)	(.39)	(.16)
Family transitions	.01	.04	.02	.01	-..02
	(.02)	(.03)	(.03)	(.05)	(.03)
Interaction Terms					
Female x Step family		.22		.03	
		(.13)		(.20)	
Female x Single		.07		-.12	
		(.10)		(.12)	
Female x Other		-.76**		2.80***	
		(.27)		(.45)	
Female x Transitions		-.05		.03	
		(.04)		(.06)	
Intercept	1.85	1.84	2.54	2.54	2.05
n	3,953	3,953	2,907	2,907	4,836

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Note: All models controlled for race/ethnicity and family income.

Table 7. Partial Results of Regression Models Predicting Maternal Reluctance to Discuss Sex, by Maternal Education

	Unstandardized Coefficients (SE)					
	High School Graduate		Some College		College Graduate	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Adolescent Characteristics						
Gender (female)	-.19***	-.16***	-.10**	-.10*	-.13***	-.12***
	(.03)	(.05)	(.03)	(.05)	(.03)	(.03)
Adolescent age (WI)	.01	.01	.02	.02	.01	.01
	(.01)	.01)	(.01)	(.01)	(.01)	(.01)
Romantic rel. (WI)	-.05	-.05	-.12**	-.12***	-.04	-.04
	(.04)	(.04)	(.04)	(.04)	(.03)	(.03)
Sexually active	-.03	-.03	-.01	-.01	-.03	-.03
	(.04)	(.04)	(.04)	(.04)	(.03)	(.03)
Family Characteristics						
Step family	-.07	.01	.05	.02	-.08	-.01
	(.05)	(.09)	(.07)	(.10)	(.06)	(.09)
Single	-.06	.03	-.01	-.10	-.09	-.09
	(.05)	(.08)	(.06)	(.09)	(.05)	(.07)
Other	.29	.28*	.67*	.63	-.08	.15
	(.17)	(.14)	(.31)	(.40)	(.28)	(.48)
Family transitions	-.03	-.06	-.05*	-.02	.01	.00
	(.02)	(.03)	(.03)	(.04)	(.02)	(.04)
Interaction Terms						
Female x Step family		-.15		.07		-.13
		(.12)		(.15)		(.12)
Female x Single		-.17		.16		-.01
		(.09)		(.11)		(.09)
Female x Other		-.01		-.09		-.50
		(.34)		(.45)		(.49)
Female x Transitions		.01		-.06		.02
		(.03)		(.04)		(.05)
Intercept	1.86	1.84	1.58	1.59	1.53	1.52
n	3,953	3,953	2,907	2,907	4,836	4,836

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Note: All models controlled for race/ethnicity and family income.

Table 8. Partial Results of Regression Models Predicting Mother-Adolescent Relationship Quality, by Maternal Education Level

	Unstandardized Coefficients (SE)					
	High School Graduate		Some College		College Graduate	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Adolescent Characteristics						
Gender (female)	-.02	-.02	-.01	.01	-.02	-.05
	(.02)	(.04)	(.03)	(.04)	(.02)	(.02)*
Adolescent age (WI)	.01	.01	-.01	-.01	.01	.01
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Romantic relationship (WI)	-.08***	-.08***	-.04	-.04	-.05**	-.06**
	(.02)	(.02)	(.03)	(.03)	(.02)	(.02)
Sexually active	-.21***	-.21***	-.15***	-.15***	-.21***	-.22***
	(.03)	(.03)	(.04)	(.04)	(.03)	(.03)
Family Characteristics						
Step family	-.02	-.09	.02	.01	.03	-.11
	(.06)	(.07)	(.05)	(.07)	(.06)	(.09)
Single	-.04	-.08	-.03	-.03	.02	-.01
	(.04)	(.05)	(.05)	(.07)	(.06)	(.08)
Other	-.14	.02	-.32***	-.37**	.05	.36
	(.18)	(.19)	(.10)	(.14)	(.26)	(.24)
Family transitions	-.03	-.00	-.02	-.01	-.06**	-.04
	(.02)	(.02)	(.02)	(.02)	(.02)	(.03)
Interaction Terms						
Female x Step family		.14		.03		.28*
		(.09)		(.11)		(.12)
Female x Single		.07		.00		.06
		(.07)		(.08)		(.11)
Female x Other		-.28		.11		-.71
		(.31)		(.18)		(.44)
Female x Transitions		-.05		-.03		-.03
		(.03)		(.04)		(.05)
Intercept	4.04	4.04	4.34	4.34	4.11	4.13
n	3,953	3,953	2,907	2,907	4,836	4,836

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Note: All models controlled for race/ethnicity and family income.

Chapter 4: Discussion

In sum, the results of this study indicated that parent-adolescent communication about sexual health did in fact differ by adolescent gender. Adolescent gender influenced the extent to which mothers discussed the consequences of sex as well as their reluctance in talking with daughters compared to sons. Communication also varied noticeably among step and single-parent households, compared to families with two married biological parents, as well as by maternal education. Importantly, however, family structure and maternal education did little to moderate the focal gender difference in mother-adolescent communication. These patterns point to three general lessons.

The first lesson points to the role of gender in parent-adolescent communication. In line with previous studies, mothers were more likely to discuss the consequences of sex with daughters than sons (Downie and Coates 1999; Guilamo-Ramos et al. 2008; Meschke et al. 2002) and less reluctant to talk with daughters about sex than sons. Effect sizes for discussing the consequences of sex were greater (27%) than those calculated for mothers' reluctance to discuss sex (20%), thus indicating a greater gender gap in conversations about the consequences of sex. Although the data in this study does not point to the underlying causes behind this gender gap, a few possibilities are likely. Girls experience greater risks of contracting STDs (Panchaud et al. 2000), as well as suffering long-term consequences of these diseases, including infertility and a variety of pregnancy-related complications (Institute of Medicine 1997). This realization among mothers may coincide with the belief that girls are more at risk or vulnerable when it comes to sexual activity, thus necessitating more communication on behalf of the mother.

Mothers are also likely to be more comfortable with their same-gender child, which is likely to be a primary force driving mothers' reluctance in discussing sex with sons. This finding is in line with the gender intensification hypothesis, which suggests that mother-son relationships shift further apart throughout adolescence, as well as the idea of the interpersonal connection that mothers and daughters are more apt to share.

The second lesson is that parent-adolescent communication varies slightly among different family structures. Results indicated that single and remarried mothers discussed the consequences of sex with adolescents more than married mothers, although the gender gap in communication did not differ for these mothers compared to others. This finding echoes previous research indicating that parents' beliefs regarding sexuality are more apparent to adolescents of single and remarried parents, and thus communicated to adolescents, either verbally or through observations (Weinstein and Thornton 1989; Whitbeck et al. 1994). Single and divorced mothers have also been shown to develop less restrictive attitudes towards sexual activity in general (Thornton and Camburn 1987), which may account for the significant increase in mothers discussing consequences of sex among single and step-family households.

The final takeaway point involves the significance of mothers' education on communication behaviors. Maternal education had moderate effects on both discussing the consequences of sex and reluctance to talk about sex. Trends in communicating about the consequences of sex by gender remained steady across education levels, however, these trends suggest deep socially ingrained beliefs about girls in terms of being more vulnerable. This gender gap may also be linked to the sexual double-standard that

stigmatizes and/or punishes girls more for being sexually active or becoming pregnant (Raffaelli et al. 1998). Lastly, increased comfort among mothers and daughters seems to transcend education, meaning that comfort is likely to remain a factor in communication across education levels. Mothers who had more education, however, were more likely to discuss consequences of sex with sons than those with a high school education. In other words, the gender gap did appear to shrink as maternal education decreased, supporting prior research suggesting maternal education acts as a buffer against threats, risks, and obstacles to parents' ability to translate their parenting beliefs into actual behavior (Augustine et al. 2009).

Similarly, the more education mothers had, the less reluctant they were to discuss sex with sons. Both communication outcomes also echo research pointing to the positive impact of maternal education on sexual health issues. Mothers who are more educated are more likely to support sexual health education, which is reflected here in the home (Marsman and Herold 1986; Reddy 1984).

Research on sexual health communication links mothers' education to lower levels of sexual activity, increased contraceptive use, and decreased risk of pregnancy (Hayward, Grady, and Billy 1992). Education was shown to increase communication in this study, for both daughters and sons, which suggests that either education has a moderating effect on communication or the general pro-academic behaviors and beliefs of well-educated mothers have an effect on adolescent behavior. Prior research suggests that the social and human capital mothers accrue during their education prompts them to steer their children's education in an upward trajectory and dissuade behaviors that might

put these trajectories at risk (Davis-Kean 2005; Augustine et al. 2009), which, in this case, involves taking preventive measures to help their children avoid negative sexual health outcomes that could affect their futures.

Although significant results emerged from this study, strong conclusions are not possible due to data limitations. For example, I was unable to determine the extent to which parents communicated with adolescents (i.e., once, twice, multiple occasions), which is likely to be important in terms of effectiveness. Also, this study was not able to explore the deeper mechanisms underlying mothers' communication patterns. For instance, why exactly are mothers talking more with daughters than sons? Do mothers believe their daughters are more vulnerable or that talking more in-depth with sons would be too uncomfortable? Lastly, limitations also include the fact that considerable research has been conducted on parent-adolescent sexual communication. This study does, however, take this research further in specifically examining mothers' relationship histories and education. These questions and limitations suggest the need for additional study moving forward.

Given the important role of parents in adolescents' lives and that adolescents often want to reach out to their parents to learn more about sexual health, future directions include extending research on family processes and the conversations that are taking place between parents and adolescents. For example, including items measuring parents' specific motivations for communicating about sexual health more with sons or daughters or how parents' relationship status may influence their decisions would be useful. Looking more longitudinally would be useful as well. Parents may not be

discussing sexual health at the onset of adolescence but rather prior to adolescence (Hutchinson 2002) and, thus, appearing to communicate very little or not at all during the developmental time frame examined here. An ongoing conversation in the years leading up to adolescence may be taking place. By studying these issues longitudinally, different patterns may arise that lead to a new or increased understanding of parent-adolescent communication. Questions could also be explored in a qualitative study.

This line of research is important in that values and beliefs are often modeled or internalized in the home (Feldman and Rosenthal 2000), which is why understanding communication patterns taking place between parents and adolescents can advance public health efforts. This study confirmed that communication is taking place in the home and by varying degrees among various family structures and education levels. This communication, however, seems highly gender, and it may be minimally discussed among certain family types. These findings support the importance of parent-adolescent communication and the need for a deeper understanding of the patterns of communication taking place in the home. Although debate will likely continue over the role of schools and parents in educating adolescents about sexual health, parent-adolescent communication remains an important facet of sexual health education.

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